Nebraska Behavioral Risk Factor Surveillance System

Increasing representativeness and improving prevalence estimates through raked weights and cell phone sampling

2011 Nebraska BRFSS Quick Facts :

* Cell phone interviews are being included in the methodology

* Weighting procedure changed from post-stratification to raking

* Difference in estimates between years are likely due to improved methods

* Beginning with the 2011 BRFSS data, a new trend line must be started for all risk factor and disease indicators

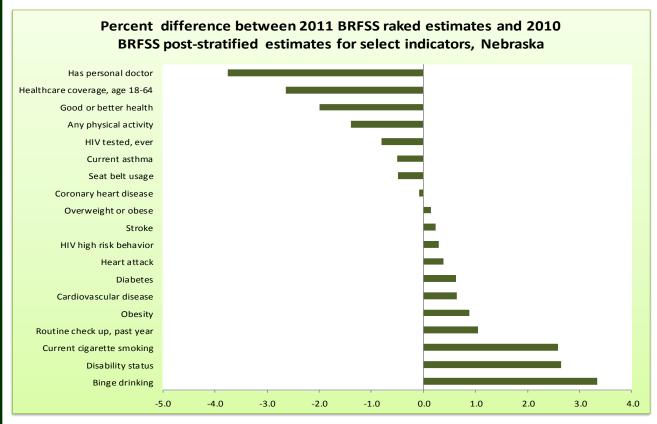* Shape and slope of the trend line should not change greatly

Cell Phone Sampling

♦ Traditionally, BRFSS has relied on calls to landline telephone numbers only.

♦ In the past several years, the number of cell phone-only households, which exclusively use cell phones for voice communication, has steadily increased in the U.S. and Nebraska.

♦ In 2010, in Nebraska, over 30% of households were cell phone-only households.

♦ Certain demographic groups are more likely to reside in a cellphone-only households. These groups include younger population, Hispanics, unmarried individuals and renters.

♦ Starting in 2011, the BRFSS sampling methodology included cell phone-only and cell phone-mostly households—the latter, are households that have a landline phone but cell phone use is 90% of the time or more.

♦ In 2011, interviews from cell phone-only or mostly households represented about 20% of all BRFSS phone interviews completed in Nebraska.

♦ *Inclusion of cell phone interviews into the BRFSS methodology will allow for a better representation of certain demographic groups described above which were increasingly being left out of the BRFSS surveys.*

Iterative Proportional Fitting (Raking)

♦ Due to certain sampling and data collection processes, the characteristics of the sample may not entirely represent the characteristics of the population. This may lead to biased estimates.

♦ Data weights are statistical adjustments employed so that the groups that are under or over represented in the sample more accurately match the population characteristics.

♦ Before 2011, BRFSS used post-stratification weighting to match the sample to the population. This procedure matches the population on four dimensions: age, gender, race/ethnicity and region.

♦ Starting in 2011, BRFSS began using a new weighting methodology (i.e. raking). This new approach allowed for consideration of other demographic dimensions in the weighting analysis (e.g. education level, marital status, home ownership status, and the crucial phone source, in addition to the standard age, gender, and race/ ethnicity and health district variables) and incorporation of cell phone sampling.

♦ *The new methodology is expected to produce prevalence estimates of risk factors and diseases that are more representative of the population.*

Percent difference between 2011 BRFSS raked estimates and 2010 BRFSS post-stratified estimates for select indicators, Nebraska

Indicator	Value
Has personal doctor	(bar to −3.7)
Healthcare coverage, age 18-64	(bar to −2.6)
Good or better health	(bar to −2.0)
Any physical activity	(bar to −1.4)
HIV tested, ever	(bar to −0.8)
Current asthma	(bar to −0.5)
Seat belt usage	(bar to −0.5)
Coronary heart disease	(bar to −0.1)
Overweight or obese	(bar to 0.1)
Stroke	(bar to 0.2)
HIV high risk behavior	(bar to 0.3)
Heart attack	(bar to 0.4)
Diabetes	(bar to 0.6)
Cardiovascular disease	(bar to 0.6)
Obesity	(bar to 0.9)
Routine check up, past year	(bar to 1.0)
Current cigarette smoking	(bar to 2.6)
Disability status	(bar to 2.7)
Binge drinking	(bar to 3.3)

Axis: -5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0

What to expect:

♦ In Nebraska, the estimates for the percent of respondents who reported having a personal doctor or healthcare coverage were overestimated with the old methodology while the estimates for the percent reporting currently smoking, binge drinking and being disabled were underestimated (figure above).

♦ Size and direction of effects vary for each state depending on the demographic profile of that state and the risk factor or disease being examined.

♦ Any shifts in observed prevalence from 2010 post-stratification to 2011 raking for BRFSS measures will likely reflect improved methods.

♦ While the actual estimate may be different due to the new methodology and addition of cell phone interviews, the shape and slope of the trend line should not change greatly.

♦ *A new trend line for prevalence estimates must be started with the 2011 BRFSS data.*

Factsheet prepared by: Mihaela Johnson, PhD
For more information on this topic, contact:
Nebraska BRFSS Program
301 Centennial Mall South, P.O. Box 95026
Lincoln, NE 68509-5026
Phone: 402-471-1063
Website: www.dhhs.ne.gov/brfss

Department of Health & Human Services
DHHS
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